

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

|   |   |  |
|---|---|--|
| Applicant's or agent's file reference<br><b>PCT-12975</b> | <b>FOR FURTHER ACTION</b>                                       |  |
| International application No.<br><b>PCT/EP2004/012743</b> | International filing date (day/month/year)<br><b>10/11/2004</b> | (Earliest) Priority Date (day/month/year)<br><b>10/11/2003</b> |
| Applicant<br><b>ICON GENETICS AG</b>                      |   |  |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 8 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b.  With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2.  Certain claims were found unsearchable (See Box II).

3.  Unity of invention is lacking (see Box III).

## 4. With regard to the title,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

## 5. With regard to the abstract,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

## 6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 1

as suggested by the applicant.

as selected by this Authority, because the applicant failed to suggest a figure.

as selected by this Authority, because this figure better characterizes the invention.

b.  none of the figures is to be published with the abstract.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/EP2004/012743

## Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:
  - a. type of material
    - a sequence listing
    - table(s) related to the sequence listing
  - b. format of material
    - in written format
    - in computer readable form
  - c. time of filing/furnishing
    - contained in the international application as filed
    - filed together with the international application in computer readable form
    - furnished subsequently to this Authority for the purpose of search
2.  In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/012743

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/82 A01H5/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N A01H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, EMBASE, BIOSIS

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
|------------|--|-----------------------|
| Y          | US 6 632 980 B1 (YADAV NARENDRA S ET AL)<br>14 October 2003 (2003-10-14)<br>cited in the application<br>abstract<br>column 3, line 1 - line 14<br>column 9, line 63 - column 10, line 42<br>column 11, line 53 - line 65<br>column 29, line 53 - line 55<br>-----<br>-/- | 1-57                  |

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

## \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*&\* document member of the same patent family

Date of the actual completion of the international search

4 August 2005

Date of mailing of the international search report

D 8.09.05

Name and mailing address of the ISA

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/012743

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No.                      |
|----------|--|--|
| Y        | MALLORY A C ET AL: "THE AMPLICON-PLUS SYSTEM FOR HIGH-LEVEL EXPRESSION OF TRANSGENES IN PLANTS" NATURE BIOTECHNOLOGY, NATURE PUBLISHING, US, vol. 20, no. 6, June 2002 (2002-06), pages 622-625, XP001187595 ISSN: 1087-0156 cited in the application abstract   | 1-57                                       |
| Y        | SIMPSON C G ET AL: "Expression of a heterologous gene can be improved by mutation of cryptic splice sites" JOURNAL OF EXPERIMENTAL BOTANY, vol. 46, no. SUPPL., 1995, page 38, XP009047589 & ANNUAL MEETING OF THE SOCIETY FOR EXPERIMENTAL BIOLOGY; ST. ANDREWS, SCOTLAND, UK; APRIL 3-7, 1995 ISSN: 0022-0957 the whole document   | 1,6,<br>9-12,<br>14-38,<br>43,<br>46-55,57 |
| Y        | HASELOFF J ET AL: "REMOVAL OF A CRYPTIC INTRON AND SUBCELLULAR LOCALIZATION OF GREEN FLUORESCENT PROTEIN ARE REQUIRED TO MARK TRANSGENIC ARABIDOPSIS PLANTS BRIGHTLY" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, NATIONAL ACADEMY OF SCIENCE. WASHINGTON, US, vol. 94, March 1997 (1997-03), pages 2122-2127, XP002043800 ISSN: 0027-8424 abstract page 2122, right-hand column, line 6 - line 10 | 1,6,<br>9-12,<br>14-38,<br>43,<br>46-55,57 |
| Y        | ROSE A B: "Requirements for intron-mediated enhancement of gene expression in <i>Arabidopsis</i> " RNA 01 NOV 2002 UNITED STATES, vol. 8, no. 11, 1 November 2002 (2002-11-01), pages 1444-1453, XP002329166 ISSN: 1355-8382 cited in the application the whole document   | 1,9-12,<br>14-38,<br>46-55,57              |

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## INTERNATIONAL SEARCH REPORT

International Application No

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No.                           |
|----------|---|---|
| Y        | <p>KOZIEL M G ET AL: "OPTIMIZING EXPRESSION OF TRANSGENES WITH EMPHASIS ON POST-TRANSCRIPTIONAL EVENTS"<br/>           PLANT MOLECULAR BIOLOGY, NIJHOFF PUBLISHERS, DORDRECHT, NL, vol. 32, 1996, pages 393-405, XP002936764<br/>           ISSN: 0167-4412<br/>           the whole document</p> <p>-----</p> <p>SIMPSON C G ET AL: "Efficient splicing of an AU-rich antisense intron sequence."<br/>           PLANT MOLECULAR BIOLOGY. JAN 1993, vol. 21, no. 2, January 1993 (1993-01), pages 205-211, XP009047747<br/>           ISSN: 0167-4412<br/>           abstract<br/>           page 206, left-hand column, line 17 - line 25<br/>           page 210, right-hand column, line 9 - line 33</p> <p>-----</p> <p>CHAKRABARTY R ET AL:<br/>           "Agrobacterium-mediated transformation of cauliflower: Optimization of protocol and development of Bt-transgenic cauliflower." JOURNAL OF BIOSCIENCES (BANGALORE), vol. 27, no. 5, September 2002 (2002-09), pages 495-502, XP002339198<br/>           ISSN: 0250-5991<br/>           abstract<br/>           page 497 - page 499, paragraph 3.1<br/>           table 1</p> <p>-----</p> | 1, 9-12,<br>14-38,<br>46-55, 57                 |
| Y        |   | 1-5,<br>9-12,<br>14-39,<br>41, 42,<br>46-55, 57 |
| X        |   | 56  |

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/EP2004/012743

### Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3.  Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

#### Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-55 and 57

A stably transformed plant containing in cell nuclei a heterologous DNA having a sequence encoding a RNA replicon operably linked or linkable to a transcription promoter, the sequence encoding a RNA replicon functions exhibiting at selected localities function-conservative differences causing an increased frequency of replicon formation compared to a RNA replicon not exhibiting said differences. A process of expressing a sequence of interest in a plant using such a modified RNA replicon.

A nucleic acid encoding a RNA replicon wherein the sequences for replicon function exhibit at selected localities function-conservative differences being capable of causing an increased frequency of replicon formation compared to a RNA replicon not exhibiting said differences.

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2. claim: 56

A process of expressing a sequence of interest in a plant comprising transforming a plant with a suspension of Agrobacteria containing in the T-DNA a heterologous DNA encoding a replicon operably linked or linkable to a transcription promoter whereby the suspension of Agrobacteria has a concentration of cells of said Agrobacteria corresponding to a calculated optical density at 600 nm of at most 0.04.

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## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/012743

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
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|  |                  | AU 2249901 A            | 30-05-2001       |
|  |                  | BR 0008910 A            | 29-01-2002       |
|  |                  | CA 2359758 A1           | 25-05-2001       |
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|  |                  | WO 0136595 A2           | 25-05-2001       |
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|  |                  | EP 1115870 A2           | 18-07-2001       |
|  |                  | HU 0104697 A2           | 28-03-2002       |
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|  |                  | WO 0017365 A2           | 30-03-2000       |
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|  |                  | BR 9815260 A            | 21-11-2000       |
|  |                  | CA 2304984 A1           | 06-05-1999       |
|  |                  | EP 1025234 A1           | 09-08-2000       |
|  |                  | HU 0004222 A2           | 28-03-2001       |
|  |                  | PL 340297 A1            | 29-01-2001       |
|  |                  | WO 9922003 A1           | 06-05-1999       |